

FORM PTO-1390 (REV. 1-98)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 06640	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO. (If known, see 37 CFR 1.5) Not Yet Assigned 10/048036	
INTERNATIONAL APPLICATION NO. PCT/AU00/00872		INTERNATIONAL FILING DATE 21 JULY 2000		PRIORITY DATE CLAIMED 23 JULY 1999	
TITLE OF INVENTION: DISPLAYING MEDICAL IMAGES AND EFFECTS OF DISEASE AND/OR DRUGS					
APPLICANT(S) FOR DO/EO/US RICHARD, Gregory William					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371 (f)). The submission must include items (5), (6), (9) and (21) indicated below. 4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed §5 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input type="checkbox"/> is attached hereto (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input type="checkbox"/> is attached hereto. b. <input checked="" type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)). <ol style="list-style-type: none"> a. <input type="checkbox"/> are attached hereto (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <p>Items 11. to 16. below concern document(s) or information included:</p> <ol style="list-style-type: none"> 11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input type="checkbox"/> A change of power of attorney and/or address letter. 17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13.2 and 35 U.S.C. 1.821 - 1.825. 18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 20. <input type="checkbox"/> Other items or information: 					
21. <input type="checkbox"/> The following fees are submitted:				CALCULATIONS PTO USE ONLY	

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
10/048036		

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):				
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.. ..\$1040.00				
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.\$890.00				
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$740.00				
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)(4).. ..\$710.00				
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)(4)..... ..\$100.00				
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$1040.00
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	42 - 20 =	22	x \$18.00	\$396.00
Independent claims	6 - 3 =	3	x 84.00	\$252.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$280.00	\$
TOTAL OF ABOVE CALCULATIONS =				\$1688
Reduction of 1/2 for filing by small entity, if applicable. (Note 37 CFR 1.27).				\$844.00
SUBTOTAL =				\$844.00
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$
TOTAL NATIONAL FEE =				\$844.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$ 40.00
TOTAL FEES ENCLOSED =				\$884.00
				Amount to be rendered:
				\$909.00
				charged:
				\$
<p>a. <input checked="" type="checkbox"/> A check in the amount of \$ 909.00 to cover the above fees is enclosed.</p> <p>b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.</p> <p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No 19-2555. A duplicate copy of this sheet is enclosed.</p>				
<p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.</p> <p>SEND ALL CORRESPONDENCE TO:</p>				
Albert C. Smith		SIGNATURE		
Fenwick & West, LLP		Albert C. Smith		
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Palo Alto, CA 94306				
		20,355		
		REGISTRATION NUMBER		

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

APPLICANT: Gregory W. RICHARDS

APPLICATION NO.: Unassigned

FILING DATE: Unassigned

TITLE: Displaying Medical Images And Effects of Disease And/Or
Drugs

EXAMINER: Unassigned

GROUP ART UNIT: Unassigned

ATTY. DKT. NO.: 06640

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service pursuant to 37 CFR 1.10 in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on the date shown below.			
Signature:	<i>Albert C. Smith</i>		
Typed or Printed Name:	Albert C. Smith, Reg. No. 20,355	Dated:	1/23/02
Express Mail Label Number:	EL566203268US		

BOX: PATENT APPLICATION
COMMISSIONER FOR PATENTS
WASHINGTON, DC. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to the examination of the patent application identified above, please amend the application as follows. All of the claims in this application are set forth as follows:

In the Claims:

Cancel claims 1-42;

Insert claims 43-84 as follows:

- 43) A method of generating images for demonstrating the effects of illness/treatment on a living body, the method including generating an image sequence, the image sequence including a number of images generated based on a wire frame model of a living body, the image sequence showing at least one of:
 - a) The effect of an illness by showing at least:
 - i) A healthy living body;
 - ii) A living body effected by the illness; and,
 - iii) One or more intermediate images in which the living body is partially effected by the illness; and,
 - b) The effect of a treatment by showing at least:
 - i) A living body effected by an illness;
 - ii) A treated living body; and,
 - iii) One or more intermediate images in which the living body is partially effected by the treatment.
- 44) A method according to claim 43, the method of generating the images including:
 - a) Obtaining a brief outlining the images required to show the effects of an illness/treatment;
 - b) Generating a storyboard outlining each of the images to be used to represent the effects of an illness/treatment;
 - c) Having the storyboard reviewed by medically qualified personnel;
 - d) Generating the images outlined in the storyboard, the images being generated based on a wire frame model of a living body; and,
 - e) Storing the images as image data, the image data being representative of the images subsequent display.
- 45) A method according to claim 44 the brief being generated by a medical advisory board, and the storyboard being reviewed by a medical advisory board.
- 46) A method according to claim 44 the brief defining the animation and content required to define the effects of the illness/treatment on the living body.
- 47) A method according to claim 44 the storyboard detailing the content, look and feel and movement required to show the effects of an illness/treatment in the generated images.

- 48) A method according to claim 44 the generated images being reviewed by a medical advisory board.
- 49) A method according to claim 44 the method of generating images including using wire frame models and a number of body surfaces, the method including, for each image:
 - a) Selecting a wire frame model and a surface in accordance with the defined storyboard; and,
 - b) Storing the images as image data.
- 50) A method according to claim 43, the images being three-dimensional, and being viewable from any selected direction, angle, cross-section or other view point.
- 51) A method according to claim 43, the method further including providing audio and/or text messages associated with the images.
- 52) A method according to claim 43, the treatments including drug treatments, surgical treatments and other treatments associated with said disease, the images showing at least one of:
 - a) The effects of particular drugs;
 - b) The results of medical research findings; and,
 - c) The procedure of surgery.
- 53) A method of demonstrating the effects of illnesses and treatments on a living being using a suitably programmed processing system, the processing system including a store, an input, a display and a suitably programmed processor, the method including causing the processor to:
 - a) Cause the display to display a list of body systems;
 - b) Select one of the body systems in response to an input command;
 - c) Receive an input command selecting an illness/treatment;
 - d) Select an image sequence from image data stored in the store, each image sequence including a number of images generated based on a wire frame model of a living body, each image sequence showing the effects of a respective illness or treatment; and,
 - e) Display the selected image sequence, the selected image sequence showing the effect of the selected illness/treatment.
- 54) A method according to claim 53, wherein the image sequence showing the effects of at least one of:
 - a) An illness by showing at least:

- i) A healthy living body;
- ii) A living body effected by the illness; and,
- iii) One or more intermediate images in which the living body is partially effected by the illness; and,

b) A treatment by showing at least:

- i) A living body effected by an illness;
- ii) A treated living body; and,
- iii) One or more intermediate images in which the living body is partially effected by the treatment.

55) A method according to claim 53, the list of body systems, including (but not limited to) gastrointestinal, endocrine, genitro-urinary, respiratory, sensory and skin systems.

56) A method according to claim 53, the method further including causing the processor to:

- a) Cause the display to display a list of illnesses/treatments;
- b) Select one of the illnesses/treatments in response to an input command; and,
- c) Cause the display to display an image sequence showing the effect of the selected illness/treatment on a living body.

57) A method according to claim 56, the treatments including drug treatments, surgical treatments and other treatments associated with said disease, the images showing at least one of:

- a) The effects of particular drugs;
- b) The results of medical research findings; and,
- c) The procedure of surgery.

58) A method according to claim 53, the apparatus being coupled via a communications system to a database, the method further including causing the processor to obtain information from the database.

59) A method according to claim 53, the method further including providing audio and/or text messages associated with the images.

60) A method according to claim 53, the images being three-dimensional, and being viewable from any selected direction, angle, cross-section or other view point.

61) A method according to claim 53, the images being displayed to a patient to allow a medical practitioner to demonstrate the effect of illness/treatment on the living body.

- 62) A method according to claim 53, the image data being generated in accordance with the method of claim 43.
- 63) A method of demonstrating the effects of illnesses and treatments on a living being using a suitably programmed processing system, the processing system including a store, an input, a display and a suitably programmed processor, the method including causing the processor to:
- a) Receive an input command selecting an illness/treatment;
 - b) Select an image sequence from image data stored in the store, each image sequence including a number of images generated based on a wire frame model of a living body, the image sequence showing at least one of:
 - i) The effects of an illness by showing:
 - (1) A healthy living body;
 - (2) A living body effected by the illness; and,
 - (3) One or more intermediate images in which the living body is partially effected by the illness; or,
 - ii) The effects of a treatment by showing:
 - (1) A living body effected by an illness;
 - (2) A treated living body; and,
 - (3) One or more intermediate images in which the living body is partially effected by the treatment; and,
 - c) Display the selected image sequence, the selected image sequence showing the effect of the selected illness/treatment.
- 64) A method according to claim 63, the method further including:
- a) Cause the display to display a list of body systems to the user; and,
 - b) Select one of the body systems in response to input commands from the user.
- 65) A method according to claim 64, the list of body systems, including (but not limited to) gastrointestinal, endocrine, genitro-urinary, respiratory, sensory and skin systems.
- 66) A method according to claim 63, the method further including causing the processor to:
- a) Cause the display to display a list of illnesses/treatments;
 - b) Select one of the illnesses/treatments in response to an input command; and,
 - c) Cause the display to display an image sequence showing the effect of the selected illness/treatment on a living body.

- 67) A method according to claim 66, the treatments including drug treatments, surgical treatments and other treatments associated with said disease, the images showing at least one of:
- a) The effects of particular drugs;
 - b) The results of medical research findings; and,
 - c) The procedure of surgery.
- 68) A method according to claim 63, the apparatus being coupled via a communications system to a database, the method further including causing the processor to obtain information from the database.
- 69) A method according to claim 63, the method further including providing audio and/or text messages associated with the images.
- 70) A method according to claim 63, the images being three-dimensional, and being viewable from any selected direction, angle, cross-section or other view point.
- 71) A method according to claim 63, the images being displayed to a patient to allow a medical practitioner to demonstrate the effect of illness/treatment on the living body.
- 72) A method according to claim 63, the image data being generated in accordance with the method of claim 43.
- 73) A computer program product for demonstrating the effects of illnesses and treatments on a living being, the computer program product including computer executable code adapted to cause a suitably programmed processing system to perform the method of claim 53.
- 74) A computer program product for demonstrating the effects of illnesses and treatments on a living being, the computer program product including computer executable code adapted to cause a suitably programmed processing system to perform the method of claim 63.
- 75) A processing system for demonstrating the effects of illness/treatment on a living body, the processing system including:
- a) A store for storing image data;
 - b) An input for receiving commands from a user;
 - c) A display; and,
 - d) A processor, the processor being adapted to:
 - i) Cause the display to display a list of body systems;
 - ii) Select one of the body systems in response to an input command;

- iii) Receive an input command selecting an illness/treatment;
- iv) Select an image sequence from the image data stored in the store, each image sequence including a number of images generated based on a wire frame model of a living body, each image sequence showing the effects of a respective illness or treatment; and,
- v) Display the selected image sequence, the selected image sequence showing the effect of the selected illness/treatment.

76) A processing system according to claim 75, the image sequence showing the effects of at least one of:

- a) An illness by showing at least:
 - i) A healthy living body;
 - ii) A living body effected by the illness; and,
 - iii) One or more intermediate images in which the living body is partially effected by the illness; and,
- b) A treatment by showing at least:
 - i) A living body effected by an illness;
 - ii) A treated living body; and,
 - iii) One or more intermediate images in which the living body is partially effected by the treatment.

77) A processing system for demonstrating the effects of illness/treatment on a living body, the processing system including:

- a) A store for storing image data;
- b) An input for receiving commands from a user;
- c) A display; and,
- d) A processor, the processor being adapted to:
 - i) Receive an input command selecting an illness/treatment;
 - ii) Select an image sequence from the image data stored in the store, each image sequence including a number of images generated based on a wire frame model of a living body, the image sequence showing at least one of:
 - (1) The effects of an illness by showing:
 - (a) A healthy living body;

- (b) A living body effected by the illness; and,
- (c) One or more intermediate images in which the living body is partially effected by the illness; or,
- (2) The effects of a treatment by showing:
 - (a) A living body effected by an illness;
 - (b) A treated living body; and,
 - (c) One or more intermediate images in which the living body is partially effected by the treatment; and,
- iii) Display the selected image sequence, the selected image sequence showing the effect of the selected illness/treatment.

78) A processing system according to claim 77, the processor being further adapted to:

- a) Cause the display to display a list of body systems to the user; and,
- b) Select one of the body systems in response to input commands from the user.

79) A processing system according to claim 75, the image data being generated in accordance with the method of claim 43.

80) A processing system according to claim 77, the image data being generated in accordance with the method of claim 43.

81) A processing system according to claim 75, the processing system being adapted to perform the method of claim 53.

82) A processing system according to claim 75, the processing system being adapted to perform the method of claim 63.

83) A processing system according to claim 77, the processing system being adapted to perform the method of claim 53.

84) A processing system according to claim 77, the processing system being adapted to perform the method of claim 63.

Variable	Mean	SD	Min	Max
Age	34.5	10.2	21	55
Gender	0.5	0.5	0	1
Marital status	0.6	0.5	0	1
Education	12.5	1.5	9	16
Income	1500	500	500	3000
Health status	0.8	0.2	0	1
Smoking status	0.3	0.5	0	1
Alcohol consumption	0.2	0.4	0	1
Exercise frequency	0.5	0.5	0	1
Stress level	0.7	0.3	0	1
Depression score	0.4	0.4	0	1
Life satisfaction	0.6	0.5	0	1
Work satisfaction	0.5	0.5	0	1
Family satisfaction	0.6	0.5	0	1
Community satisfaction	0.5	0.5	0	1
Overall quality of life	0.6	0.5	0	1

Favorable action is solicited.

Dated:

17/23/02

By:

a.c. Smith

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10/048036

- 1 -

DISPLAYING MEDICAL IMAGES AND EFFECTS OF DISEASE AND/OR DRUGS

Background of the Invention

5 The present invention relates to a method, apparatus, system and software for displaying visual images of body parts/systems, and the effects of disease and/or medications thereon. In particular, the present invention relates to displaying three-dimensional images of the human body, organs, limbs or other parts thereof, whereby such images may be viewed from any desired angle direction, magnification, cross-section or other view point.

10 The present invention also relates to provision of the aforementioned features in conjunction with an integrated computerised information and business system for medical practitioners and/or like professional persons, facilitating access to various databases and software such as drug, research, business and other databases.

15 Description of the Prior Art

Presently, following diagnosis of a medical condition by a medical practitioner, the practitioner seeks to explain to the patient the nature and extent of the disease, and the affect of drugs, surgery or other treatment thereon. The practitioner typically reverts to published
20 documentation, including textbooks, brochures, etc., or to a model of the human body or of a particular organ, limb or other body part, to assist in such explanation.

Difficult medical concepts can, of course, be quite complex in nature for the medical practitioner to explain, and, are not readily understood by the patient.

25 As such, a need exists for an effective communication facility to assist medical practitioners in explaining such medical concepts to their patients.

Notwithstanding the aforementioned problem, medical practitioners are additionally required
30 to maintain a vast and up-to-date knowledge of information, including the latest advances in treatment procedures and techniques, drugs, research data, specialist details, etc. Furthermore,

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they typically also need to maintain business knowledge including documentation and information, such as practice management, patient records, appointments, daily schedules, banking, travel, taxation, etc.

- 5 As such, there exists a further need for an integrated system for provision of such information in an economic and readily usable format.

Summary of the Invention

10 The present invention seeks to overcome the disadvantages of the prior art by providing a system for displaying visual images of a person, a person's organs, limbs or other bodily parts, and for displaying such images, in a three-dimensional simulated format, together with the effects of disease and/or medications thereon.

15 The present invention also seeks to provide such a visual imaging system in conjunction with a fully integrated information and business system to assist in other aspects of a medical or like professional practice.

20 In one broad form, the present invention provides a system for displaying visual images of a living being or part thereof.

Preferably, the system further includes means for displaying visual images of the effect of disease, drugs, surgery or other treatment on said living being or part thereof.

25 Also preferably, said images are three-dimensional simulations, and may be viewed from any selected direction, angle, cross-section or other view point.

In a preferred form, said system further includes readable and/or audio messages associated with said visual images.

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In a further broad form, the present invention provides a system for displaying simulated visual images of a living being such as the human body or a part thereof and the effect of disease, drugs, surgery or other treatment thereon, including:

a computer having a processor, input means, display means,

5 a first data storage means to provide data representative of visual images of the human body or a part thereof, and,

a second data storage means to provide data representative of the effect of disease, drugs, surgery or other treatment on said living being or part thereof,

10 wherein, in response to input data entered by an operator into said input means, said processor, utilising data from at least one of said data storage means, formulates and displays simulated visual images of the effects of diseases, drugs, surgery or other treatment on said living being or part thereof on said display means.

15 In this preferred form, either one or both of said data storage means are provided at a remote location, communication therewith being via modem or the like on a communication carrier.

Preferably, communication between said database(s) and said computer is via the Internet.

20 Also preferably, the system further includes an integrated professional hardware/software package, for example, for a medical practitioner, including one or more of electronic drug databases, prescription software, Medicare processing, hospitals on-line, daily medical bulletins, specialists, research data, educational institutions, on-line publications, on-line banking, practice management advice, patient records, appointments, daily schedules, medical conferences, travel
25 bookings, taxation advice, etc.

Also preferably, the system includes hardware and software including a PC or laptop computer, printers, modems, etc.

30 In a further broad form, the present invention provides a method of providing a visual image of a living being or part thereof, including the steps of:

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displaying a visual image or a selected living being or part thereof on a display device;
selecting, via an input means, a disease, drug, surgery or other treatment to be applied
to image of said living being or part thereof;

processing said inputted information using a processor, and utilising a database
5 representing disease, drug, surgery or other treatment data including its effects on a living being
or part thereof;

displaying on said display device a visual image of selected living being or part thereof
illustrating the effect of said applied disease, drug and/or surgery.

10 Preferably, the method further comprises the step of:

selecting a direction, angle, magnification, cross-section or other viewpoint from which
said visual image is viewed.

In yet a further broad form, the present invention provides a method of using a system for
15 displaying visual images of a human body or part thereof, including the steps of:

selecting a body system, from a group including (but not limited to) gastrointestinal,
endocrine, genitourinary, respiratory, sensory and skin systems;

selecting the display of a healthy condition of said body system, or of a body system
having the effect of disease(s), drug(s), surgery or other treatment thereon; and

20 viewing said selected display.

Preferably, when the display of a disease is selected, the method includes the further steps of:

selecting the display of drug treatments, surgical treatments and other treatments
associated with said disease.

25

Also preferably, the method further includes the steps of:

selecting presentations for display on a visual display unit, including presentations
relating to:

the effects of particular drugs;

30

the results of medical research findings; and,

the procedure of surgery.

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In a preferred form, the method further includes the step of:

selecting an information window, by for example, but not limited to, using hyperlinks or the like to retrieve further information relating to said human being or parts thereof or the effects of disease, drugs, surgery or other treatments thereon.

5

Also preferably, the method further includes the steps of:

entering a search criteria, such as, but not limited to, keywords, persons names, dates, etc., such that a data retrieval process is effected.

10 **Brief Description of the Drawings**

The present invention will become more fully understood from the following detailed description of a preferred but non-limiting embodiment thereof, described in connection with the accompanying drawings, wherein:

Fig. 1. illustrates an overview of an embodiment of the system in accordance with the present invention, showing typical hardware and software components;

Fig. 2 illustrates, in Figs. 2(a) to 2(d), a series of images selected from an animated display format, showing the progressive demonstration of medical images, in this case, associated with the muscular skeletal system, and in particular, a tibial collateral ligament;

Fig. 3 illustrates, in Figs. 3(a) to 3(i), a series of images selected from an animated display format, showing the progressive demonstration of medical images, in this case, associated with the heart;

Fig. 4 illustrates the typical steps in the production process of the animated images;

Fig. 5 illustrates a system overview of the functionality model system of the present invention;

Fig. 6 illustrates a flow chart showing typical selection which may be made during implementation of the present invention, following selection of the '3D live body' option of Fig. 5;

Fig. 7 illustrates a flow chart showing the types of presentations which may be typically displayed, following selection of the 'presentations' option of Fig. 5;

Fig. 8 illustrates a flow chart showing the types of information windows which may be displayed, following selection of the 'information window' option of Fig. 5;

Fig. 9 illustrates a flow chart showing the searching capabilities which may be displayed,

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following selection of the 'search' option of Fig. 5;

Fig. 10 illustrates a display of an example of an ancillary interface function, in this case an on-line banking function; and,

Fig. 11 illustrates a display of an example of an alternate interface function, in this case an e-mail capabilities.

Detailed Description of Preferred Embodiments

In Fig. 1 is shown a preferred but non-limiting embodiment of a plurality of hardware and software components of a system in accordance with the present invention, for use in a medical practitioner's practice, connected to a centralised database via a modem, ISDN link, satellite or other telecommunications means. The system may alternatively be an autonomous PC or like independent system, having the various databases, software, etc., stored in memory.

The system of Fig. 1 shows a centralised information source 1, a communications carrier 2 for the transmission of information, via, for example, a modem, to one or a plurality of remote terminals 3, typically provided in a medical practitioner's surgery. Each remote terminal may include a personal computer (P.C.) 4, input means such as a keypad and mouse 5, and display means such as a computer monitor 6 and printer 7. The remote system 3 would preferably also be suitable for performing any typical function of a personal computer, such as word processing, storage of patient records, and formatting of appointments and daily schedules, etc. The remote computer 3 may additionally be interfaced to on-line facilities such as banking, hospitals, pharmacies, travel agencies, and other business functions, such as illustrated by reference number 9. In addition to such capabilities, the system illustrated in Fig. 1 additionally incorporates software and databases 8 which are unique to the present invention, to enable visual images of the human body, individual organs, limbs, or other parts thereof, to be displayed or printed on the computer display 6 or printer 7 in the medical practitioner's surgery. The software and such databases 8 may be stored in the memory devices of the P.C. and/or may be accessed via a network or modem connection.

The centralised database 1 may include a main database 10 with appropriate network facilities, and is preferably additionally adapted to receive update information from daily bulletin board

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and disease information sources 11, to convey software updates 12, and, to receive other database information 13.

5 The computer software associated with the present invention provides a simulated series of anatomical presentations within an independent module, which may typically reside on the doctor's desktop.

10 The module may be separate to any other application software that the doctor may use in clinical practice. The doctor has the ability to demonstrate, to a patient, normal body functions, disease states, surgical procedures, diagnostic methods and the effects of drugs, diet or other treatment through a viewing mechanism on a computer, accessing a database of previously constructed 3D animations produced in various 3D animation software.

15 The module gives the doctor the choice of healthy, diseased and drug interacted medical conditions to explain to the patient difficult to explain medical concepts. In addition the doctor can show the patient surgical procedures to explain the method used during a specific procedure.

20 By accessing the various databases by way of navigation, the doctor has the ability to demonstrate to the patient various medical scenarios to communicate difficult to explain medical concepts. This visual interpretation bridges all communication barriers a doctor may see in everyday practice including cultural, intellectual and language barriers.

25 Images produced by the system of the present invention are preferably displayed in a three-dimensional format, and may be preferably viewed from any desired direction, angle, magnification or viewpoint, as selected.

30 For example, for a doctor to illustrate to a patient the effect of a cataract on an eye, the progressive growth of the cataract over the cornea of the eye may be illustrated in a three-dimensional simulated format. The images may be viewed from any desired external angle, and also, from internally, to display to the patient, the gradual loss of sight that might typically be experienced during the progressive development of the cataract. Then, similar images may be

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displayed showing the treatment or surgical procedures which may be performed on the patient.

For example, the removal of the cataract from the cornea may be described and illustrated in a three-dimensional representation. In addition, or in alternative thereto, the effects of drugs, may further be illustrated. Therefore, drugs used to slow the growth of a disease, reverse the effect of the disease, or otherwise control or treat the disease, may be displayed.

An example of a series of images illustrating the progressive demonstration / treatment of a torn tibial collateral ligament is shown in Fig. 2, Fig. 2(a) illustrating a first view of the musco-skeletal system in the leg of a person, Fig. 2(b) illustrating a more detailed view of the knee joint, and, Fig. 2(c) illustrating a healthy condition of a tibial collateral ligament, and Fig. 2(d) showing a torn tibial collateral ligament. It will be appreciated that a series of images showing the progressive healing of the ligament may be further embodied..

A further example of an image series is shown in Figs. 3, in Fig. 3(a) to 3(i), wherein the selected images show the progressive demonstration of a heart associated medical condition.

It will therefore be appreciated that such a system enables a medical practitioner to more clearly and simply explain difficult medical concepts to their patient in a manner which is likely to be more readily understood. The doctor, may electronically manipulate, rotate and "walk through" the body images with the patient to very accurately explain the organs and other body functions.

The doctor has the ability to stop the animation at anytime for discussion purposes. The doctor, at any time, can access other parts of the database providing additional material for the patient.

All onscreen functions are preferably mouse navigated with the exception of the search function, which has a field entry option to search for information. The module has a point and click appearance and function facilitating ease of use.

The same module can be used to educate doctors in the effects of drugs, surgical procedures, and the diagnostic process.

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An additional feature which may be considered useful to be used with the present invention is the provision of textual information to assist in the explanation of the images. Such textual information and labelling on the images may be preferably provided in any desired language.

5 The information may typically incorporate treatment procedures, etc., and may be printed in a "fact sheet" format and provided to the patient for further referral and study.

As hereinbefore mentioned, such a system may further be provided with a number of additional interfaces to enable the medical practitioner to connect to various other commercial databases, enabling a fully integrated medical and/or business system to be implemented. For example, 10 the doctor may identify prescription medication from various drug databases such as MIMS, transmit prescriptions to pharmacies, transmit processing of Medicare type operations, connect to hospitals, receive periodical medical bulletins, select database of specialists, identify up-to-date research data, connect to educational institutions, access on-line publications, perform on-line banking, such as illustrated in Fig. 10, receiving practice management advice, travel 15 information, taxation advice, etc. The various databases can be considered to be a "virtual bookshop", allowing access to relevant industry material to, in effect, provide the doctor with an electronic version of the printed matter traditionally used in the daily operation of the medical practice.

20 In addition, the medical practitioner may be able to manipulate confidential and/or publicly available patient records, and transmit patient information, such as illustrated in Fig. 11, x-rays and other images to other doctors, hospitals, etc., and/or perform tele-conferencing.

In a further embodiment, members of the public may be permitted to access a public web-site, 25 which might typically contain local doctor's surgery information including surgery hours, specialities, language spoken, plus a variety of self-help information services in areas such as poisons, services directory, basic first-aid, spider identification, etc.

In addition to various databases provided for access by the doctor, in a further embodiment, the 30 present invention may be extended to enable patients to access at least particular parts of the various databases. For example, databases such as may be useful for providing specialised on-

- 10 -

line or CD Rom information to mothers in pregnancy, new mothers, or senior persons, respectively. For example, a mother might typically have access to databases to provide 3D animations of the various stages of an embryo from conception to birth, the birth process, 3D animations of the maternity ward, details of the unborn child, nutrition issues, community support information, product catalogues, family issues, jpegs of ultrasounds, mpegs of ultrasounds, and even details of selecting a name. A database in relation to baby information could typically deal with issues for the mother, father and the new baby, including 3D animation of the development of the baby in early years, bathing, clothing sleeping, SIDS, breastfeeding, diet and nutrition, healthy family, etc., help and support groups and crisis help. This database could further include details of immunisation calendars, early learning years, 3D dental development, health and well-being, emergency procedures, and a product catalogue. A database in relation to elderly persons could typically include issues such as health and fitness, financial information, security in the home, friendship and knowledge, and could incorporate medical data on aged health issues, including early signs of heart conditions, early signs of dementia, etc.

The production process, to create the images displayed in accordance with the present invention, is exemplified in schematic form in Fig. 4.

The production of images for this purpose begins with a brief from the medical advisory board (MAB), who identify the appropriate animation and provide a specification document detailing the content required.

The specification document is then interpreted into a storyboard format. During this process decisions are made as to content, look and feel and movement that will ultimately effect the final product-the animation. Decisions are based on scientifically correct information, biologically accurate body images and consumer acceptability

The MAB then sign off the storyboard.

The animation team produces the animation from a database of wire frame models of the human

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body, including selection of surfaces, which are detailed in the specification document. The final output of the animation is in mpeg format.

The animation is then signed off by the MAB who in the process, verify all content is correct and as per the original specifications.

The system, in it's preferred embodiment, as illustrated in Fig. 5, is capable of performing, four major function, namely, 3D Live Body (as detailed in Fig. 6), Presentations (as detailed in Fig. 7), Information Window (as detailed in Fig. 8), and, Search (as detailed in Fig. 9).

The 3D Live Body Function, as detailed in Fig. 6, allows the doctor to navigate to specific areas within the human body to demonstrate to a patient their medical condition.

The first level takes the doctor to a selection of nine body systems including, but not limited to:

- i. Gastrointestinal
- ii. Cardiovascular
- iii. Central Nervous System
- iv. Musculoskeletal
- v. Endocrine
- vi. Genitourinary
- vii. Respiratory
- viii. Sensory
- ix. Skin

Once a body system has been selected, the second level allows the doctor to select from:

- i. 'Healthy Body', or
- ii. 'Diseases',

which goes to a further series of options.

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Once the doctor has selected one of the above options, the third level allows the doctor to select further options:

- i. From Health Body, the doctor can select from a series of healthy, 3D animations, which demonstrate the body in a healthy state. For example, peristalsis of the large intestine is a normal body function.
- ii. From Diseases, the doctor can select from a series of diseases relevant to the chosen body system. For example if the doctor has selected gallstones, an animation will appear to show the patient what gallstones are and how they are formed.

From this point within diseases, the doctor has a series of options including:

- i. print a fact sheet for the patient in the language of choice.
- ii. Select a drug treatment animation to demonstrate the effect of a particular drug on the disease state.
- iii. Select a surgical treatment animation to demonstrate the surgical procedure relevant to the disease state.
- iv. Other treatment options (in text format), covering other treatments including change of lifestyle, change in diet, etc.

The presentations option, as illustrated in Fig. 7, allows the doctor to view video presentations from pharmaceutical companies, which they have traditionally viewed via videotape.

This function is intended as an educational tool for the doctor rather than the patient, to learn about specific drugs and their applications. The doctor is able, in his or her own time, to view

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the presentation, which relates to specific drug information.

Additionally, presentations will be on new research findings, new surgery procedures, and general medical findings.

5

The information window option, as illustrated in Fig. 8, allows the doctor to view information at all times on his or her computer screen. The information is presented as a series of 'news' headlines in an information window, which appears on a small part of the computer screen. When the doctor 'clicks' on a headline, the window expands to reveal the full story.

10

The information appearing in the information window relates to:

- Software upgrade information
- Detailed medical information; and
- New presentation information.

15

The search function option, as illustrated in Fig. 9, provides the doctor with an alternative navigation technique.

The doctor can either select a group heading, then select the appropriate animation from within that group with the click of a mouse.

20

Alternatively, the doctor can enter (type) the search criteria, which will bring up the relevant information.

25

In the commercialisation of the invention, preferably, the material will be packaged on CD-ROM with all necessary plug in 'bundled' software and downloaded onto the doctor's hard drive in a format that will provide for both offline and online accessibility (via a dedicated intranet).

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As bandwidth improves, the online format gives the doctor access to the following functions:

1. Module Upgrades;
2. Presentations; and
- 5 3. Information Window

The Offline format gives doctor access to the following functions:

1. 3D Live Body;
- 10 2. Presentations;
3. Information Window and
4. Search Function.

It will be appreciated by persons skilled in the art that the present invention provides a unique
15 computer software and database system, apparatus and method which provides not only a fully
integrated professional information and business system to the medical practitioner in a format
which is not previously known, but also, provides a unique feature in the imaging aspect in
ensuring that a patient fully understands a particular medical condition or treatment regime.
Whilst the present invention is seen to be particularly useful as post-diagnostic tool to describe
20 and communicate, a diagnosis to the patient in a simple and accurate manner, it may further be
useful to provide educative material to doctors and assist in the diagnosis of a patient's medical
condition.

Throughout the specification, the term 'living being' has been used. The intention of this term
25 is to encompass a human being or any other animal. For example, whilst a particular
application of the invention is in respect of medical applications for persons, alternative
embodiments of the invention would encompass veterinary applications, for any type of animal
(e.g. dogs, cats, horses, etc.). By utilisation of the word 'living' in the term 'living being', no
limitation to the 'being' (person or other animal) being in a 'live' state should be taken, that is,
30 the being may be in a live or deceased state. The utilisation of the term 'living being' is,
however, chosen to be used primarily for clarity of the specification.

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The terminology 'part thereof' in relation to the 'living being' or 'human body' should be understood to encompass any individual component of the human body or other living being, such as a muscle, organ or skeletal component, or any combination of these.

5

Furthermore, the references to the 'visual images' of the living being should be understood to encompass not only real images in the forms of photographs, videos, etc., but also, in accordance with the preferred embodiment of the invention, 'animated', 'graphically represented' or images 'created' in any other form.

10

Furthermore, throughout the specification, reference is made to computer systems and communication means, etc. Whilst particular arrangements of preferred embodiments have been described, it will be appreciated by persons skilled in the art that alternative technical arrangements may be utilised. A broad, but non-limiting description of the scope of variations and modifications possible in this regard is as follows.

15

In a networked data communications system, users have access to terminals which are capable of requesting and receiving information from local or remote information sources. In such a system the terminal may be any type of computer or computerised device, a personal computer (PC), a mobile or cellular phone, a mobile data terminal, a radio modem, a portable computer, a personal digital assistant (PDA), a pager, or any other similar type of electronic device. The capability of the terminal to request and receive information may be provided by an application program, hardware or other such entity. A terminal provided with these capabilities can act as a browser.

20

25

In such a system the information source may be a server (for example, a host computer) coupled to an information storage device (for example, a hard disk drive). The exchange of information (i.e., the request and/or receipt of information) between the terminal and information source is facilitated by a connection referred to as a communication channel. The communication channel may be physically realised via a metallic wire (for example, a telephone line), an electromagnetic signal (for example,

30

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a radio frequency (RF) signal), a fibre optic cable, a microwave link, a satellite link or any other such medium or combination thereof connected to a network infrastructure.

The infrastructure may be a telephone switch, a base station, a bridge, a router, or any other such specialised component, which facilitates the connection between the terminal and the network. Collectively, the interconnected group of terminals, physical connections, infrastructure and information sources is referred to as a computer network.

The computer network itself may take a variety of forms. It may be located within a local geographic area, such as an office building, and consist of only a limited number of terminals and information sources. This type of computer network is commonly referred to as a Local Area Network (LAN). On a broader scale, it may be larger and support more users over a wider geographic area, such as across a city. This type of network is commonly referred to as a Wide Area Network (WAN). On an even broader scale LAN and WAN networks may be interconnected across a country or globally. An example of a globally connected data communications network is the Internet.

To a user the Internet appears to be a single unified computer network, although in reality it consists of many different types of computer platforms utilising many diverse data communications technologies. The technologies are connected together in such a manner so they appear transparent to the user. This transparency is made possible through the use of a standard communications protocol suite known as Transmission Control Protocol /Internet Protocol (TCP/IP).

Hypertext Markup Language (HTML) and Hypertext Transfer Protocol (HTTP) have developed to make the Internet or World Wide Web very accessible. The exchange of information on the Internet is further facilitated through hypertext documents. Hypertext documents are unique in that they use tags to define links which, when selected, fetch the related information from within the same document or from a new document altogether. The links are defined using HTML which provides a document formatting method which adapts in a consistent manner to any computer on which it is displayed. HTML tags are used to

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define the various components of an ASCII text file which make up a hypertext document, including such things as formatting and linking to other documents. HTML tags which link documents on one Internet information source to those on another do so by associating a Uniform Resource Locator (URL) with the referenced information. The ability to link

5 Internet files of similar and/or differing formats to each other, and to link documents on other Internet sites, is a powerful feature of the Internet.

The appeal of the Internet is the large-scale interconnection of public and private networks. A concern exists, however, about "unauthorised" access from public networks to the

10 attached private networks. This concern has resulted in the development of proxies. A proxy is a host computer or mechanism (usually an application program) on a network node which performs specialised functions on a network. One such function is to provide network security. Security is provided between a private and public network by requiring communications (i.e., information exchanges) to pass through the proxy. Another function of

15 a proxy is to store or cache recently accessed information (i.e., copies of documents and images). If a browser desires information which is located outside the local network, that is to say on an information source attached to an external network, communications pass from the browser through the proxy before going on to the external network. Thus a proxy may operate to deny access to a private network from a public network by not replying to HTTP

20 commands received from the public network.

It should be noted that the computer network as referenced in this specification should be taken to include all forms of connected or communicating computers or terminals having at least two terminals connected or communications as hereinbefore described. That is, the term computer

25 network should be taken to include any type of terminal as hereinbefore defined, computer, computerised device, peripheral computer equipment, computerised accessory, mobile or cellular phone, digital electronic device or other similar type of computerised electronic device or part thereof which is rendered such that it is capable of communication with at least one of any of the aforementioned entities. Said communication of information or data can occur over any

30 data communications network, computer network., wireless network, internetwork, intranetwork, local area network (LAN), wide area network (WAN), the Internet, the Internet 2,

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transient or temporary network, combinations of the above or any other type of network providing for computerised, electronic or digital devices.

Furthermore, references to the terms connecting, communication, transmitting, requesting, receiving, exchanging and the like, and permutations thereof, as applied to the term computer network and/or components thereof should be taken to pertain to the transfer of information or data. Such transfers of information or data can be facilitated for by any form of entity / entities for facilitating such, including, but not limited to, metallic wires or cables, semi-conducting wires or cables, optical fibres and optical devices, wireless means, electromagnetic waves and the like and modulations thereof, acoustic waves and the like and modulations thereof, control of electric and/or magnetic fields, and/or the transportation of all forms of memory devices.

The invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, in any or all combinations or two or more of said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which the invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

It will be appreciated that numerous variations and modifications may be enacted to the present invention. For example, whilst the embodiment described has illustrated an application of the invention for medical practitioners, the invention may be readily adapted to other professional persons, for example, veterinarians, dentists, etc. Furthermore, it may be adapted to any engineer, tradesperson, or the like whereby alterations are usefully demonstrated to a lay person.

All such variations and modifications should be considered to fall within the spirit of the present invention as broadly hereinbefore described and as hereinafter claimed.

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THE CLAIMS:

- 1) A method of generating images for demonstrating the effects of illness/treatment on a living body, the method including:
 - a) Obtaining a brief outlining the images required to show the effects of an illness/treatment;
 - b) Generating a storyboard outlining each of the images to be used to represent the effects of an illness/treatment;
 - c) Having the storyboard reviewed by medically qualified personnel;
 - d) Generating the images outlined in the storyboard, the images being generated based on a wire frame model of a living body; and,
 - e) Storing the images as image data, the image data being representative of the images subsequent display.
- 2) A method according to claim 1, the brief being generated by a medical advisory board.
- 3) A method according to claim 1 or claim 2, the storyboard being reviewed by a medical advisory board.
- 4) A method according to any of claims 1 to 3, the brief defining the animation and content required to define the effects of the illness/treatment on the living body.
- 5) A method according to any of claims 1 to 4, the storyboard detailing the content, look and feel and movement required to show the effects of an illness/treatment in the generated images.
- 6) A method according to claim 1 to 5, the image data including a number of images forming an image sequence.
- 7) A method according to claim 6, the image sequence representing an animation.
- 8) A method according to any of claims 1 to 7, the generated images being reviewed by a medical advisory board.
- 9) A method according to any of claims 1 to 8, the generated images being stored as an image sequence.
- 10) A method according to claim 9, wherein the image sequence showing the effect of an illness shows at least:
 - a) A healthy living body;

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- b) A living body effected by the illness; and,
 - c) One or more intermediate images in which the living body is partially effected by the illness.
- 11) A method according to claim 9 or claim 10, wherein the image sequence showing the effect of a treatment shows at least:
- a) A living body effected by an illness;
 - b) A treated living body; and,
 - c) One or more intermediate images in which the living body is partially effected by the treatment.
- 12) A method according to any of claims 1 to 11, the method of generating images including using wire frame models and a number of body surfaces, the method including, for each image:
- a) Selecting a wire frame model and a surface in accordance with the defined storyboard; and,
 - b) Storing the images as image data.
- 13) A method according to any of claims 1 to 12, the images being three-dimensional, and being viewable from any selected direction, angle, cross-section or other view point.
- 14) A method according to any of claims 1 to 13, the method further including providing audio and/or text messages associated with the images.
- 15) A method of generating images for demonstrating the effects of illness/treatment on a living body, the method being substantially as hereinbefore described.
- 16) A method of demonstrating the effects of illnesses and treatments on a living being using a suitably programmed processing system, the processing system including a store, an input, a display and a suitably programmed processor, the method including causing the processor to:
- a) Receive an input command selecting an illness/treatment;
 - b) Select a sequence of images from image data stored in the store, the image data defining a number of image sequences, each image sequence being associated with a respective illness or treatment, and,

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- c) Display the selected image sequence, the selected image sequence showing the effect of the selected illness/treatment.
- 17) A method according to claim 16, the image data being generated in accordance with the method of any of claims 1 to 15.
- 18) A method according to claim 16 or claim 17, the method further including causing the processor to:
- a) Cause the display to display a list of body systems, including (but not limited to) gastrointestinal, endocrine, genitro-urinary, respiratory, sensory and skin systems; and,
 - b) Select one of the body systems in response to an input command.
- 19) A method according to claim 18, the method further including causing the processor to display one or more images representing the selected body system in a healthy living body, in response to an input command.
- 20) A method according to claim 18 or claim 19, the method further including causing the processor to:
- a) Cause the display to display a list of illnesses;
 - b) Select one of the illnesses in response to an input command; and,
 - c) Cause the display to display an image sequence showing the effect of the selected illness on a healthy living body.
- 21) A method according to claim 20, the method further including causing the processor to:
- a) Cause the display to display a number of possible treatments to the user;
 - b) Select one of the possible treatments in response to commands from the user;
 - c) Select an image sequence from the store in accordance with the selected treatment; and,
 - d) Cause the display to display the selected image sequence, the image sequence showing the effect of the treatment on the living body.
- 22) A method according to claim 21, the treatments including drug treatments, surgical treatments and other treatments associated with said disease, the images showing at least one of:
- a) The effects of particular drugs;

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- b) The results of medical research findings; and,
c) The procedure of surgery.
- 23) A method according to claim 21 or claim 22, the number of possible treatments being predetermined by a medical practitioner.
- 24) A method according to any of claims 16 to 23, wherein the image sequence showing the effects of an illness show at least:
- a) A healthy living body;
b) A living body effected by the illness; and,
c) One or more intermediate images in which the living body is partially effected by the illness.
- 25) A method according to any of claims 16 to 24, wherein the image sequence showing the effect of a treatment shows at least:
- a) A living body effected by an illness;
b) A treated living body; and,
c) One or more intermediate images in which the living body is partially effected by the treatment.
- 26) A method according to any of claims 16 to 25, the apparatus being coupled via a communications system to a database, the method further including causing the processor to obtain information from the database.
- 27) A method according to any of claims 16 to 26, the method further including providing audio and/or text messages associated with the images.
- 28) A method according to any of claims 16 to 27, the images being three-dimensional, and being viewable from any selected direction, angle, cross-section or other view point.
- 29) A method according to any of claims 16 to 28, the images being displayed to a patient to allow a medical practitioner to demonstrate the effect of illness/treatment on the living body.
- 30) A method according to any of claims 16 to 29, the input commands being input by a medical practitioner to allow the medical practitioner to demonstrate the effect of illness/treatment on the living body.

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- 31) A method of demonstrating the effects of illnesses and treatments on a living being using a suitably programmed processing system, the processing system including a store, an input, a display and a suitably programmed processor, the method being substantially as hereinbefore described.
- 32) A processing system for demonstrating the effects of illness/treatment on a living body, the processing system including:
- a) A store for storing image data, the image data defining a number of image sequences, each image sequence being associated with a respective illness or treatment;
 - b) An input for receiving commands from a user;
 - c) A display; and,
 - d) -A processor, the processor being adapted to:
 - i) Receive input commands selecting an illness/treatment;
 - ii) Access image data in accordance with the selected illness/treatment;
 - iii) Display the sequence of images associated with the selected illness/treatment, the sequence of images showing the effect of the illness/treatment on the living body.
- 33) A processing system according to claim 32, the image data being generated in accordance with the method of any of claims 1 to 15.
- 34) A processing system according to claim 32 or claim 33, the processing system being adapted to perform the method of any of claims 16 to 31.
- 35) A processing system according to any of claims 32 to 34, the processor being further adapted to:
- a) Cause the display to display a list of body systems to the user; and,
 - b) Select one of the body systems in response to input commands from the user.
- 36) A processing system according to claim 13, the processor being further adapted to display one or more images representing the operation of the selected body system in a healthy living body, in response to input commands from the user.
- 37) A processing system according to claim 35 or claim 36, the processor being further adapted to:
- a) Cause the display to display a list of illnesses;

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- b) Select one of the illnesses in response to an input command; and,
- c) Cause the display to display an image sequence showing the effect of the selected illness on a healthy living body.
- 38) A processing system according to claim 37, the processor being further adapted to:
- a) Display a number of possible treatments to the user;
- b) Select one of the possible treatments in response to commands from the user;
- c) Select an image sequence from the store in accordance with the selected treatment; and,
- d) Display the selected image sequence, the image sequence showing the effect of the treatment on the living body.
- 39) A processing system according to any of claims 32 to 38, the processing system including:
- a) A first data storage means to provide the image data; and,
- b) A second data storage means to provide data representative of the effect of the illness or treatment on said living being or part thereof.
- 40) A processing system according to any one of claims 32 to 39, further including an integrated professional hardware/software package, for example, for a medical practitioner, including one or more of electronic drug databases, prescription software, Medicare processing, hospitals on-line, daily medical bulletins, specialists, research data, educational institutions, on-line publications, on-line banking, practice management advice, patient records, appointments, daily schedules, medical conferences, travel bookings, taxation advice, etc.
- 41) A processing system according to any of claims 32 to 40, the processing system being coupled via a communications system to a database, the processor being further adapted to obtain information from the database.
- 42) A processing system for demonstrating the effects of illness/treatment on a living body, the processing system being substantially as hereinbefore described.

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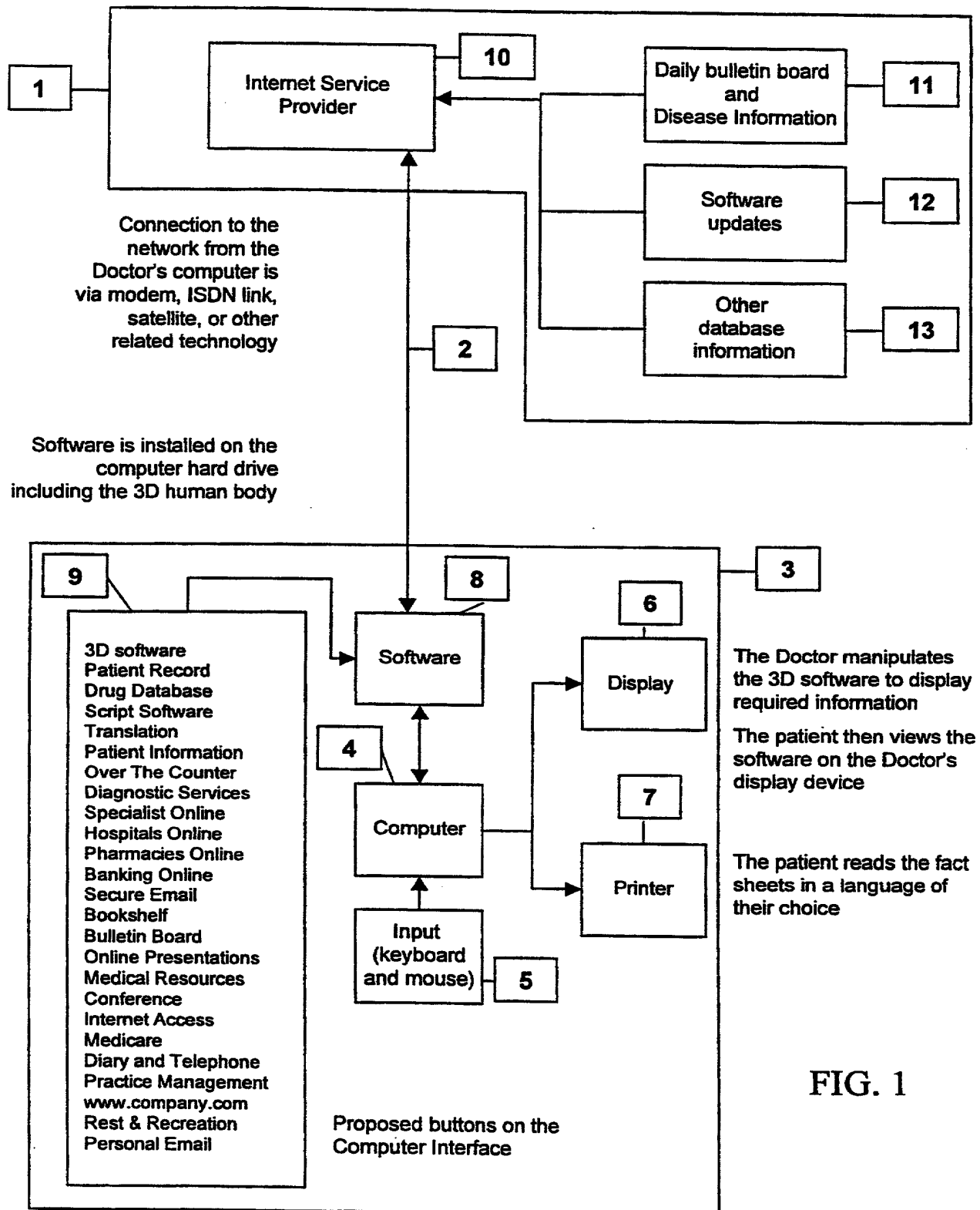
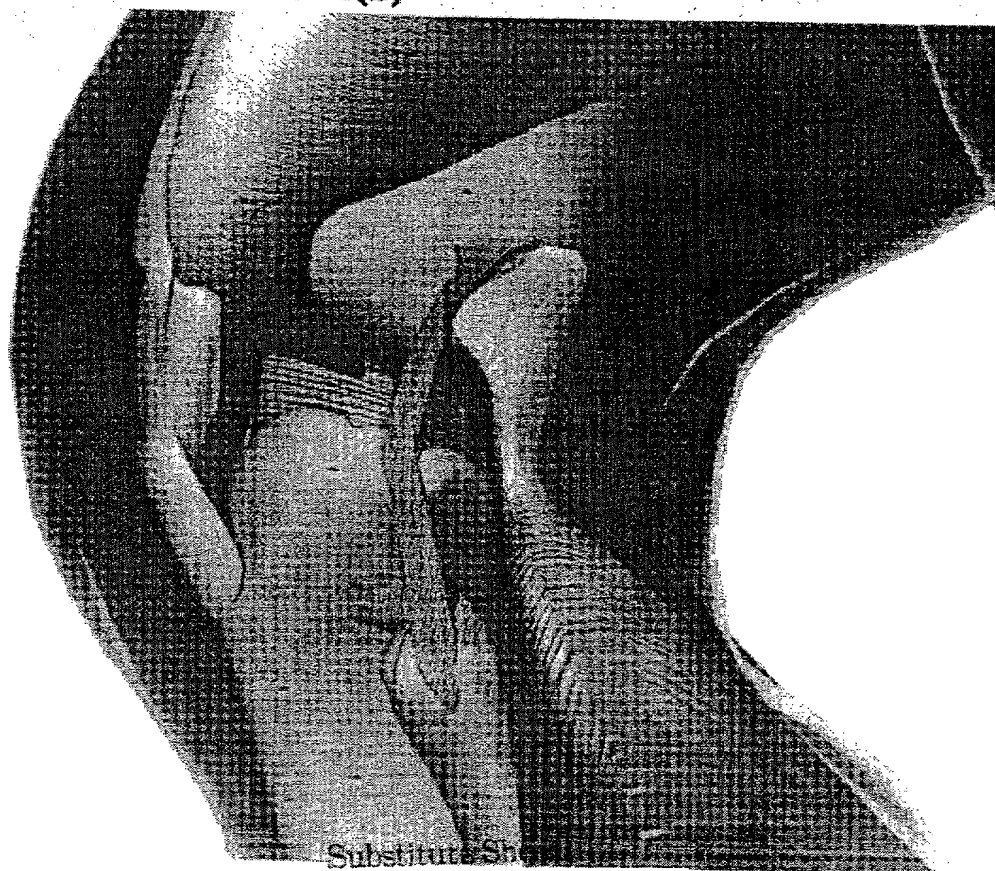


FIG. 1



FIG. 2(a)

FIG. 2(b)



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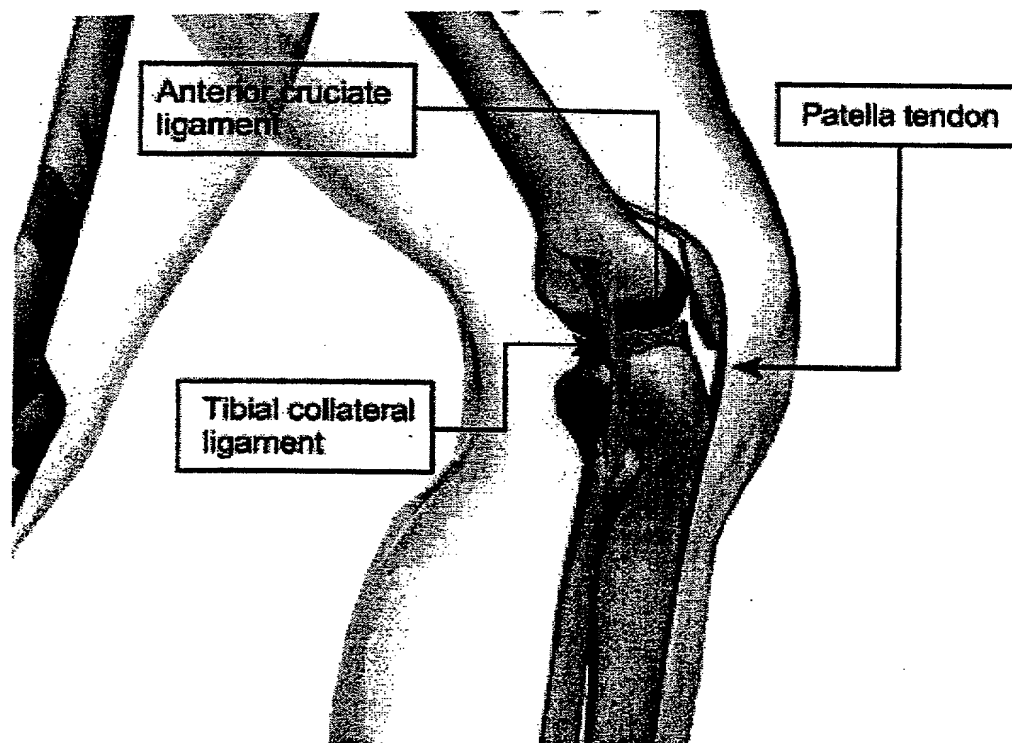


FIG. 2(c)

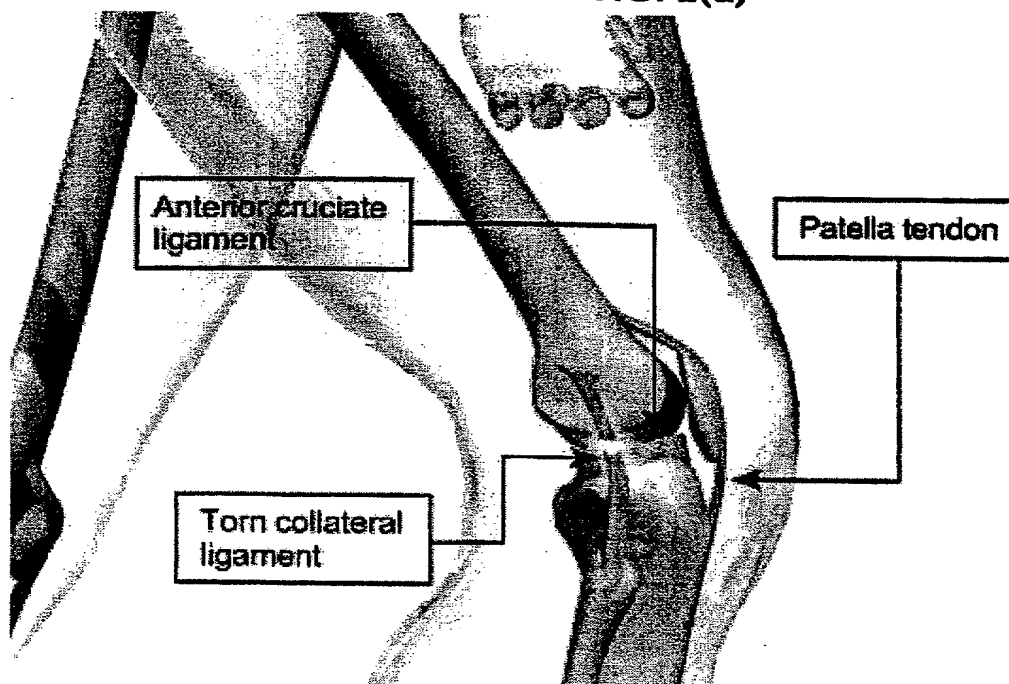


FIG. 2(d)

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FIG. 3(a)

FIG. 3(b)



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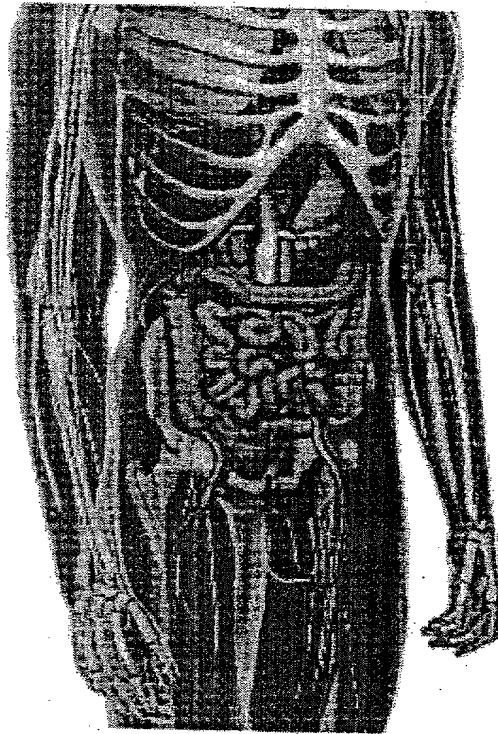
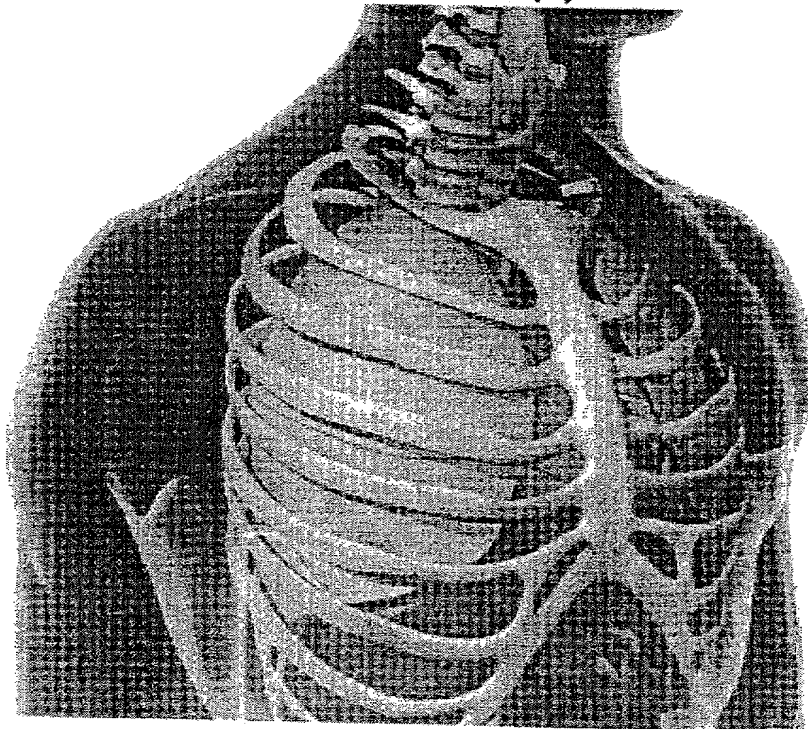


FIG. 3(c)

FIG. 3(d)



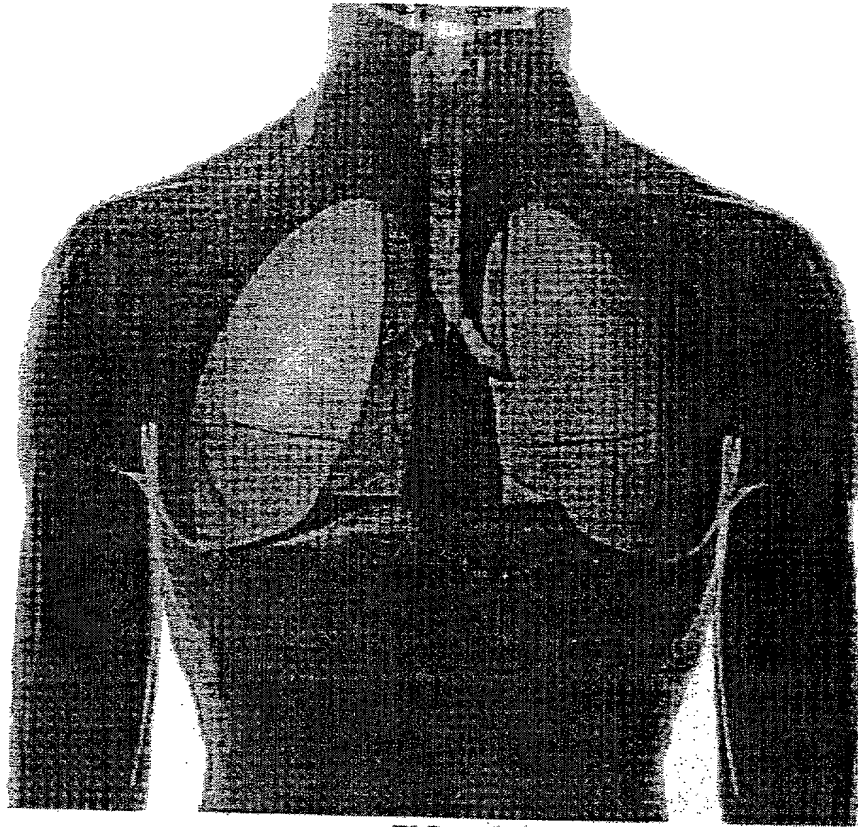
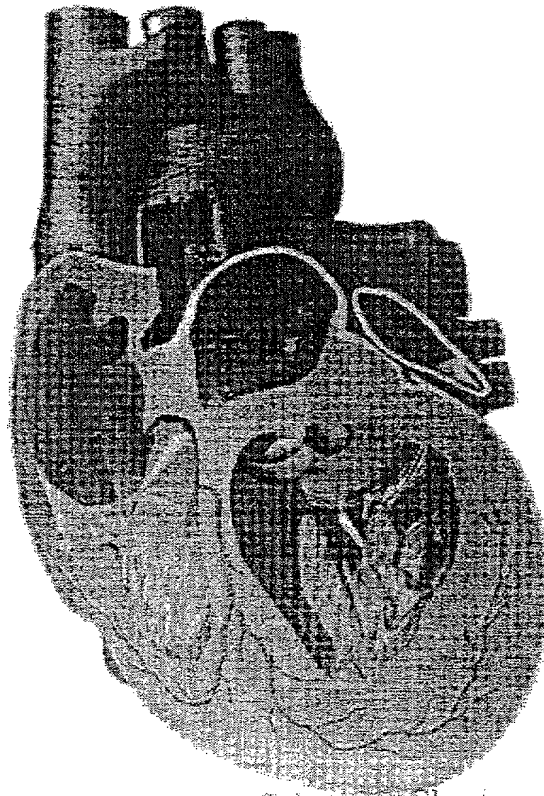


FIG. 3(e)

FIG. 3(f)



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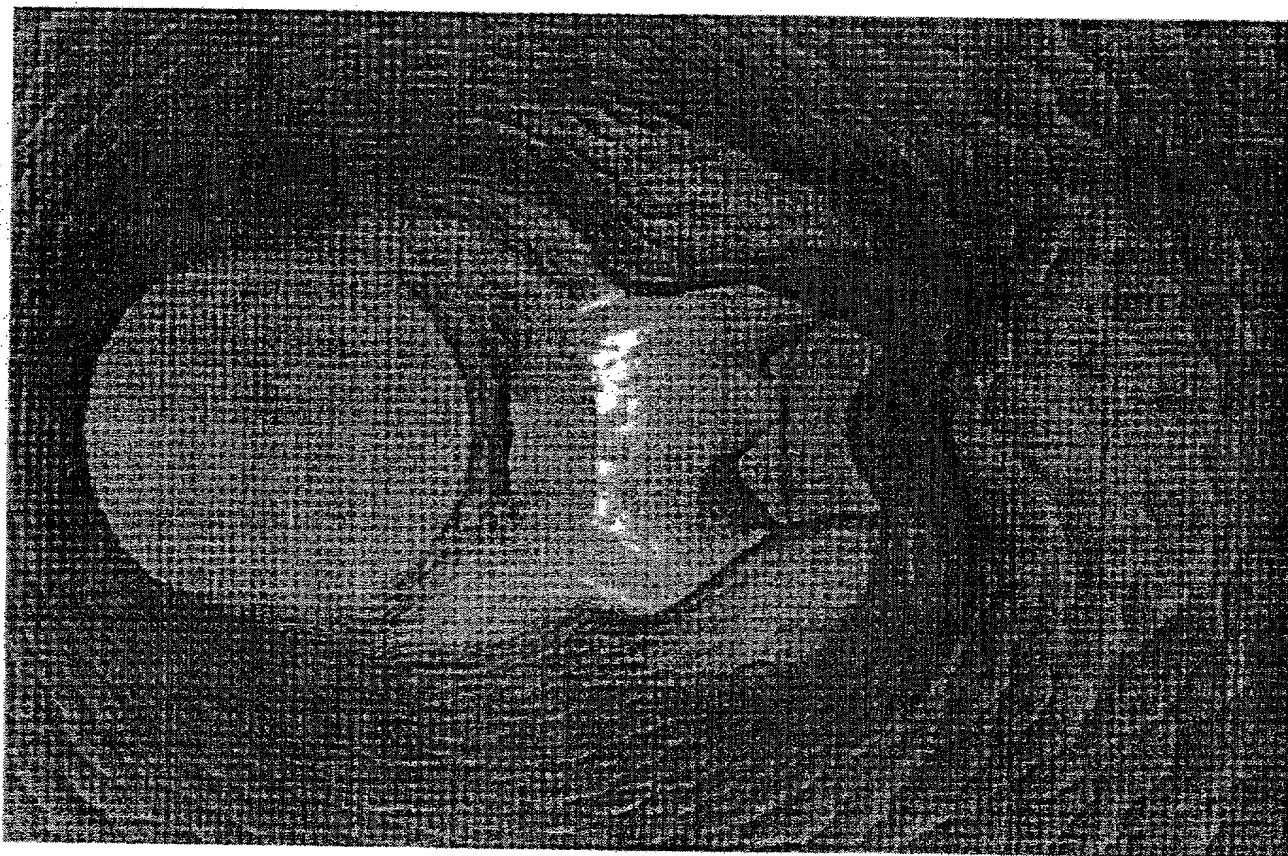


FIG. 3(g)

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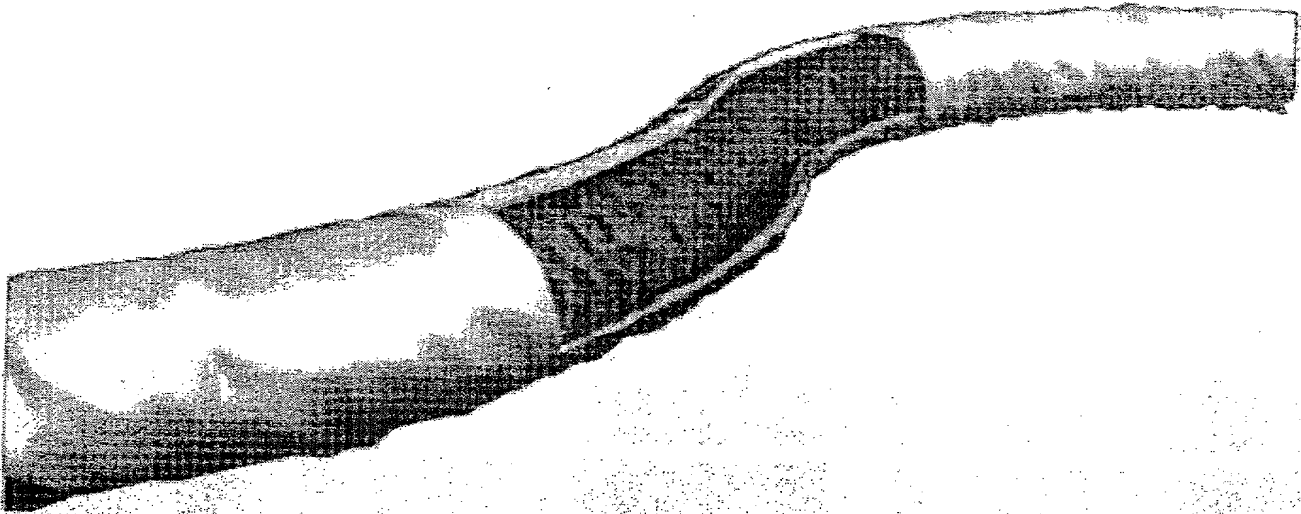
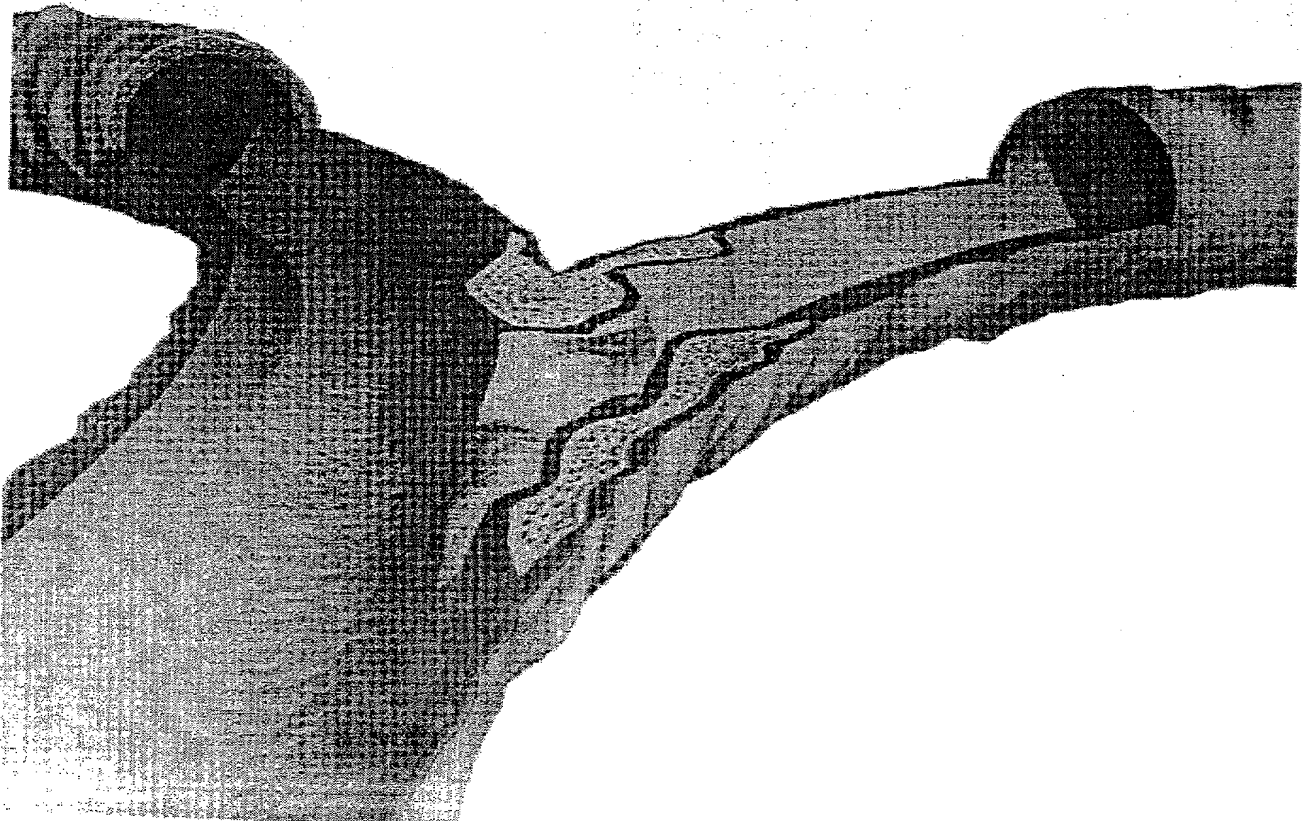


FIG. 3(h)

FIG. 3(i)



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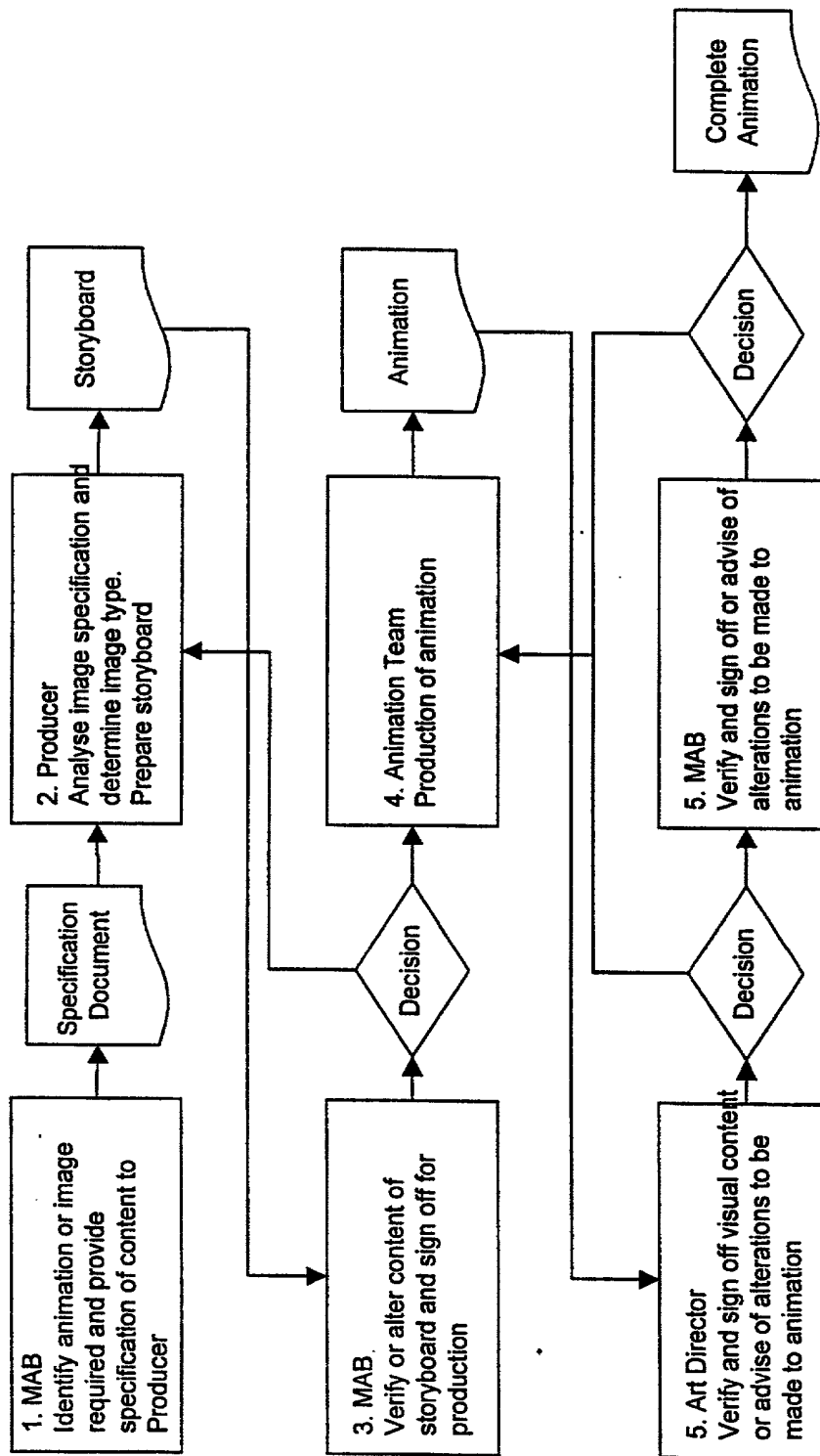


FIG. 4

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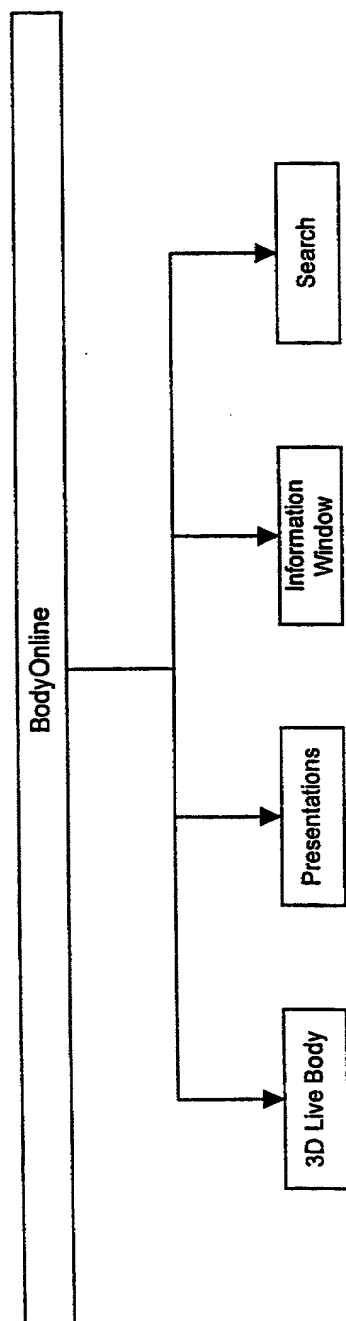


FIG. 5

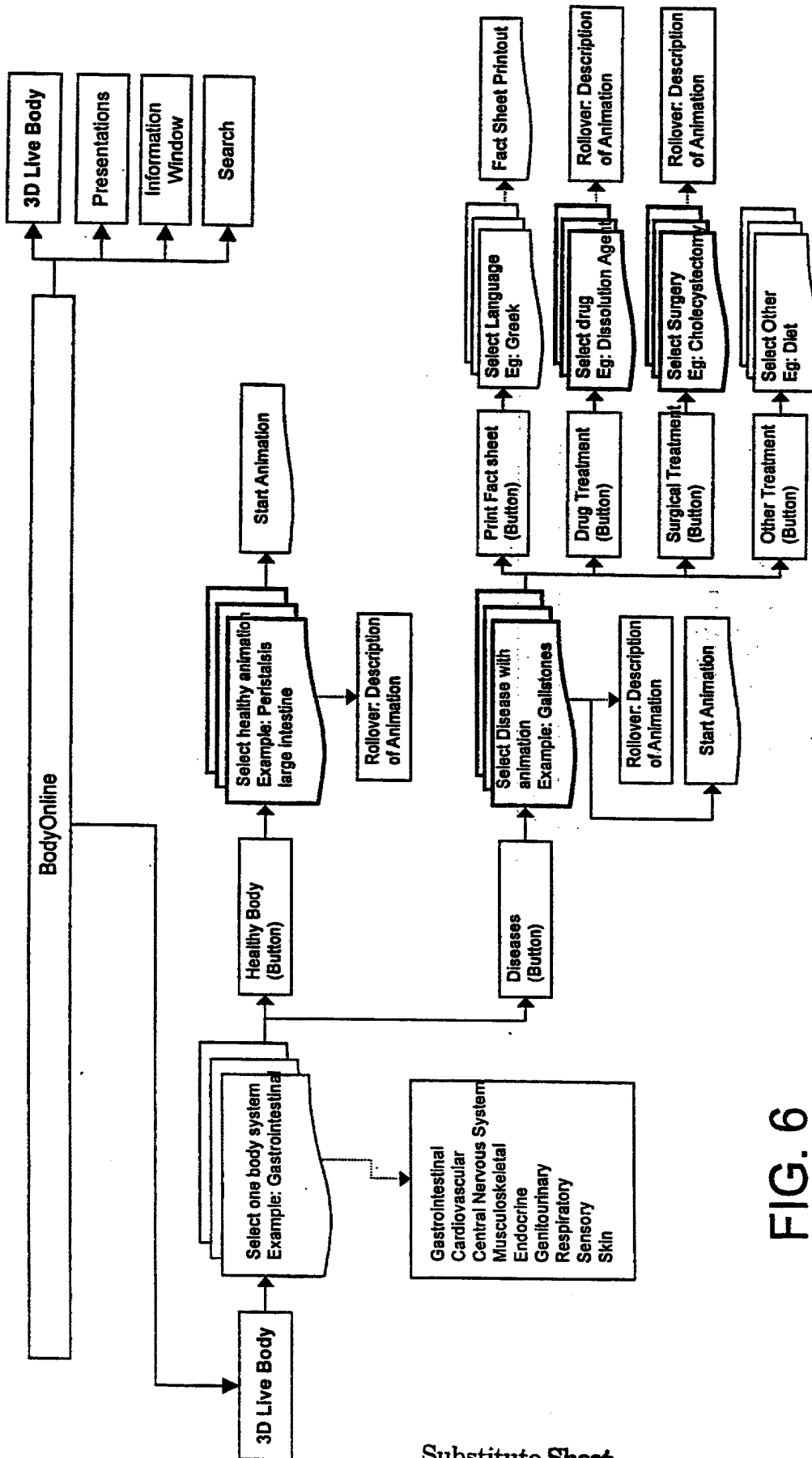


FIG. 6

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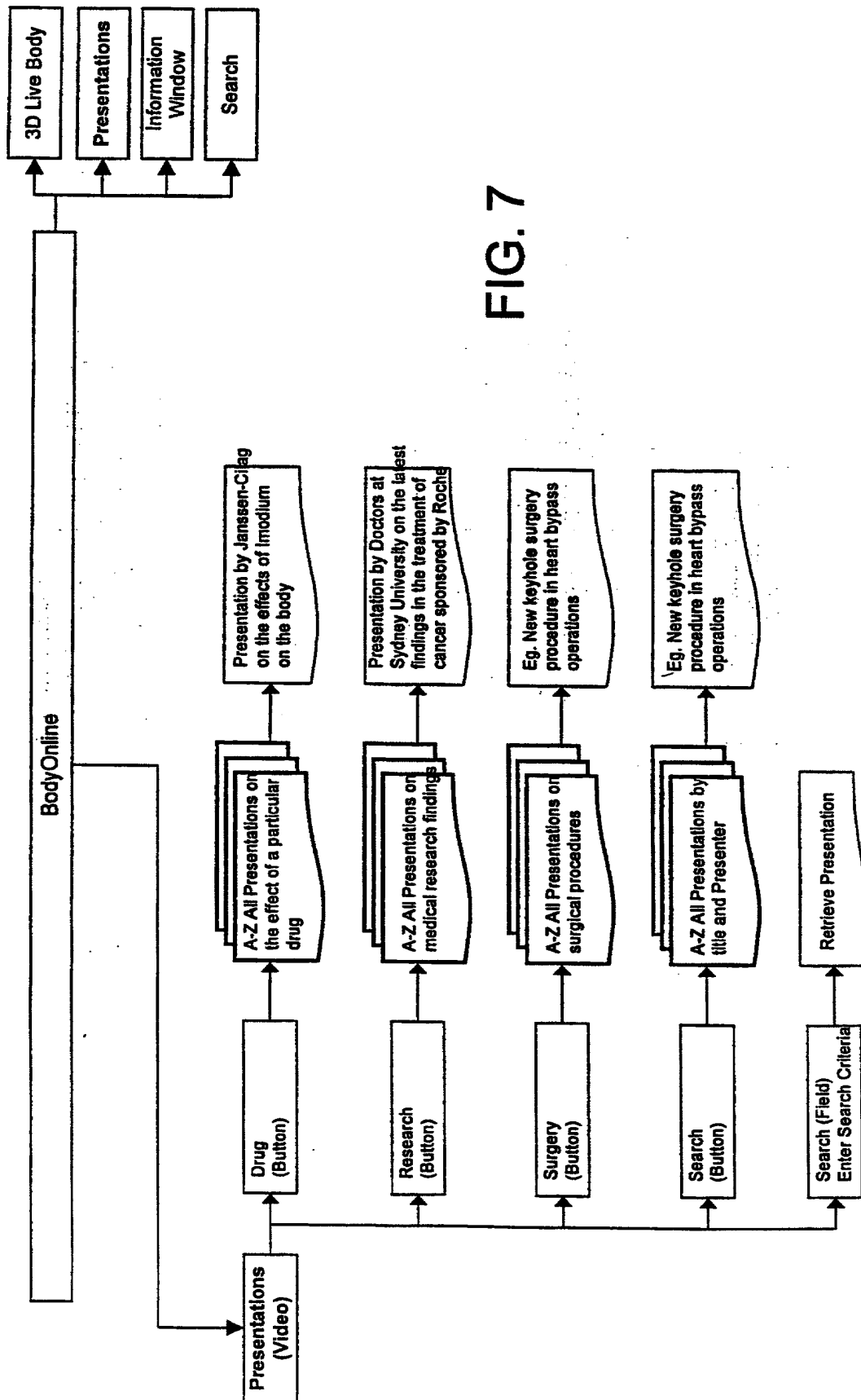


FIG. 7

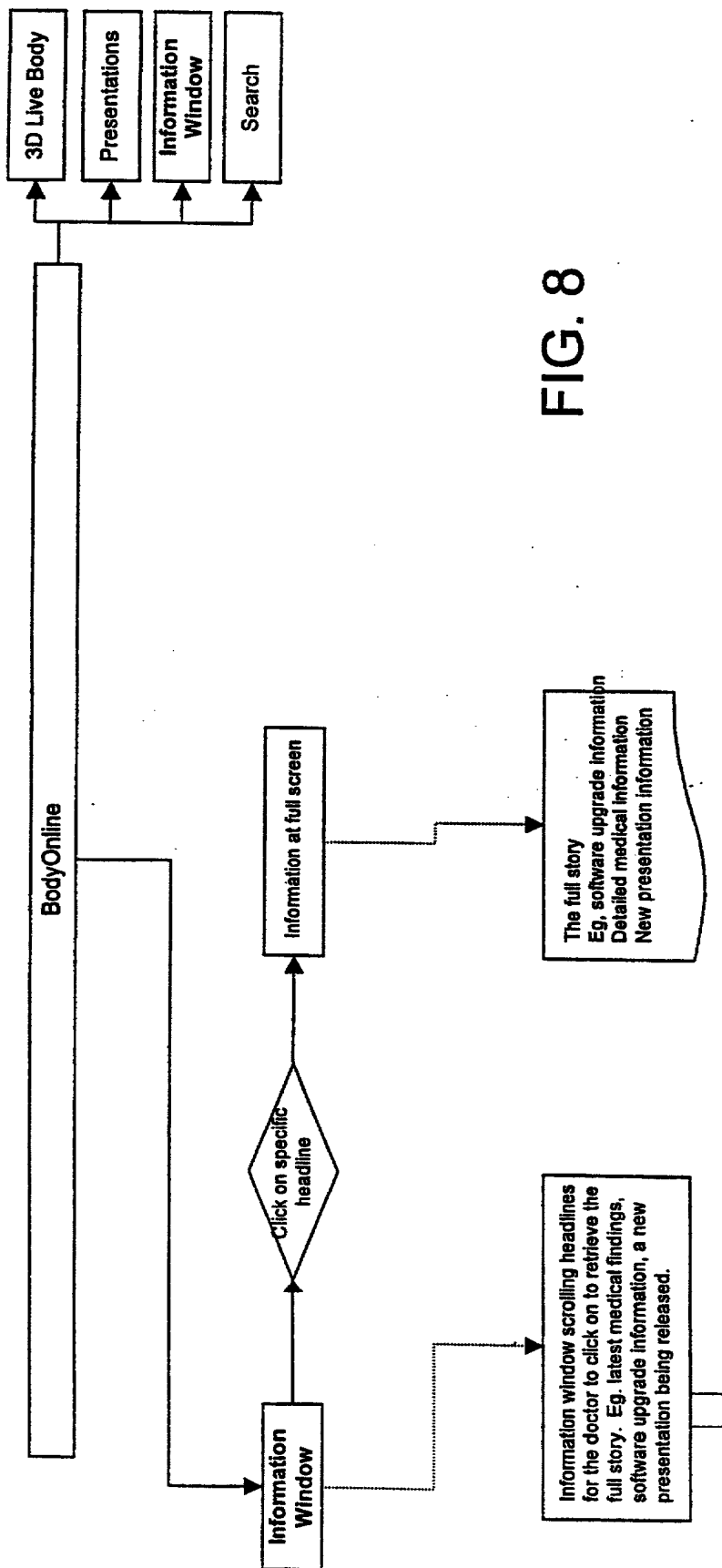
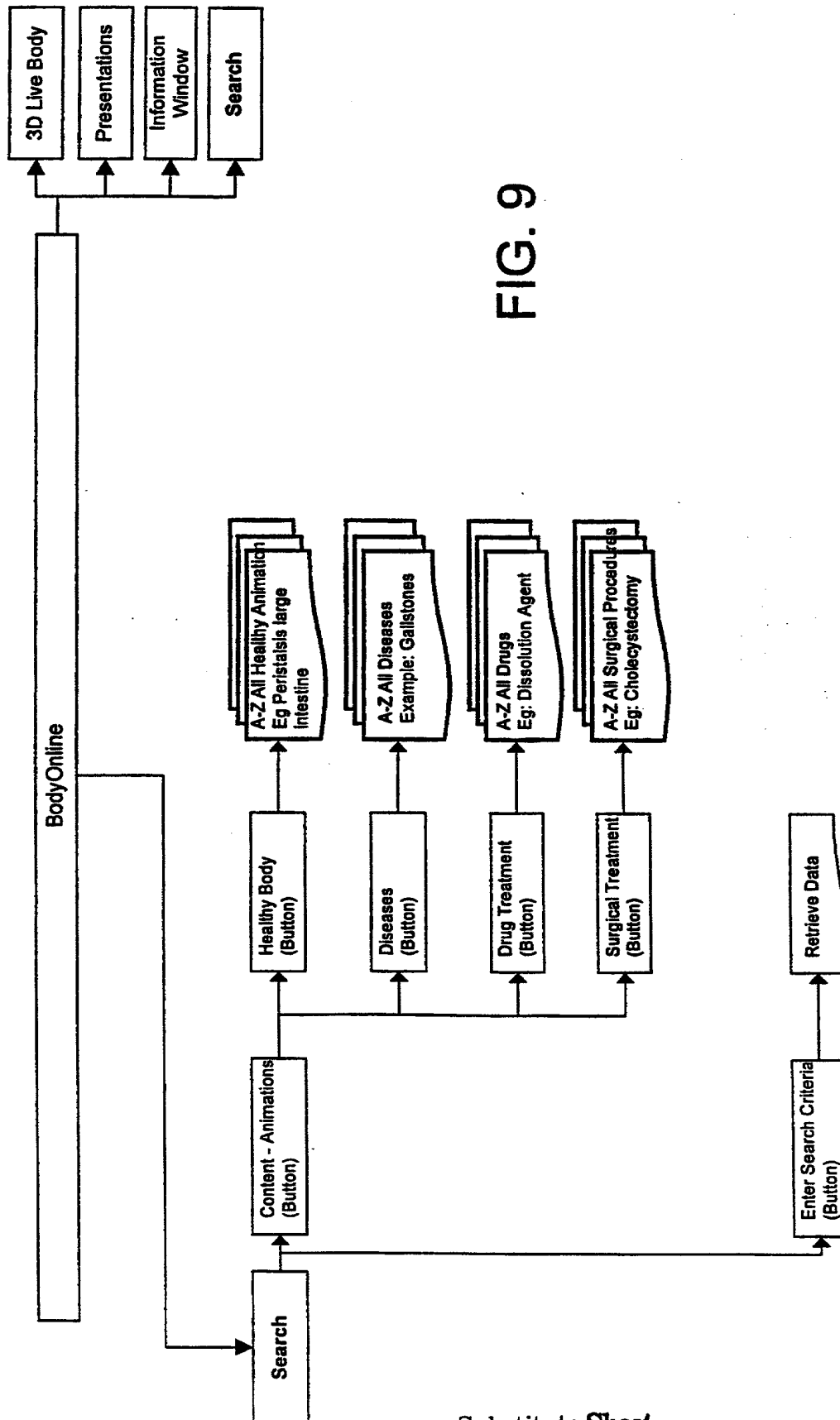


FIG. 8

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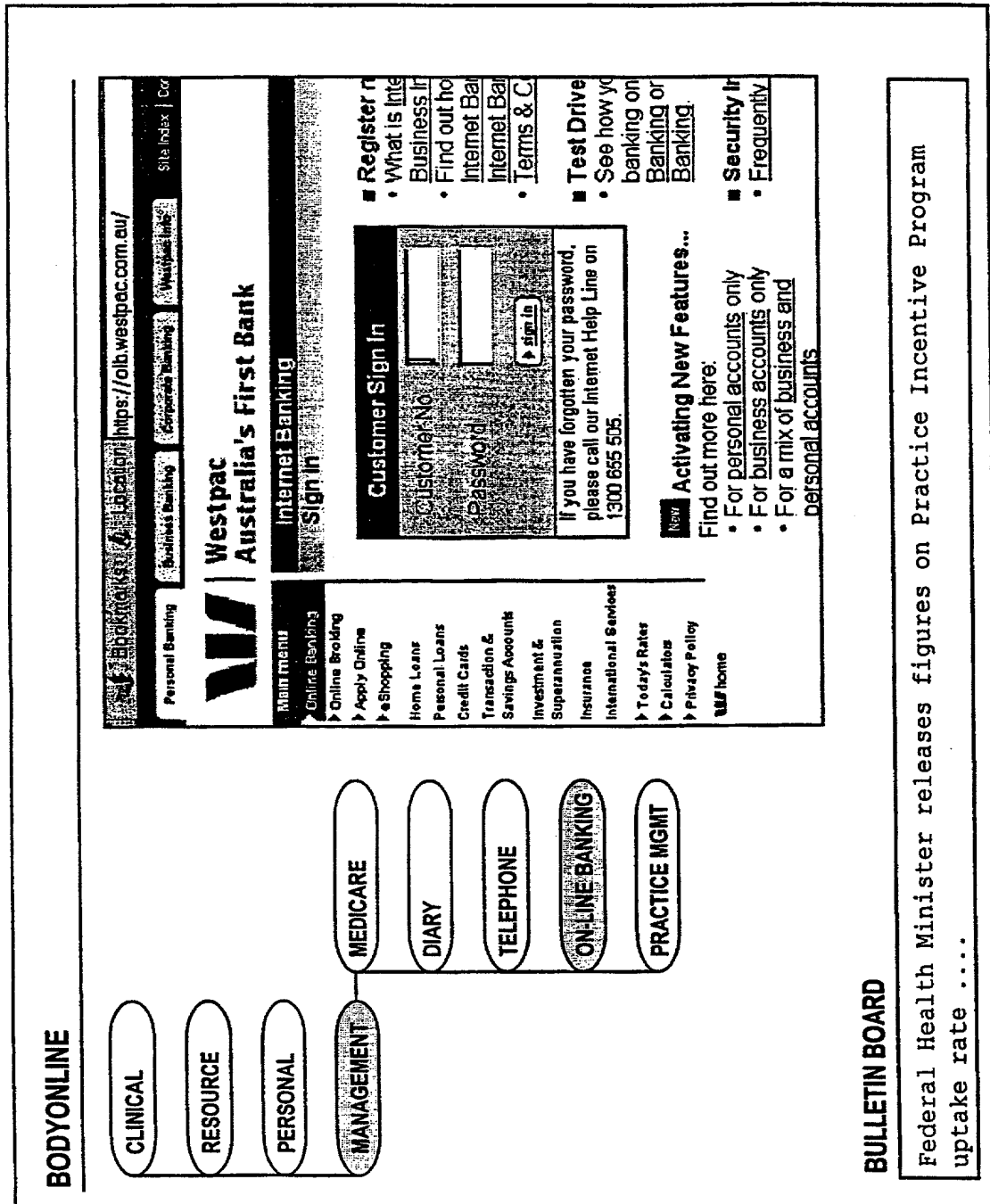


FIG. 10

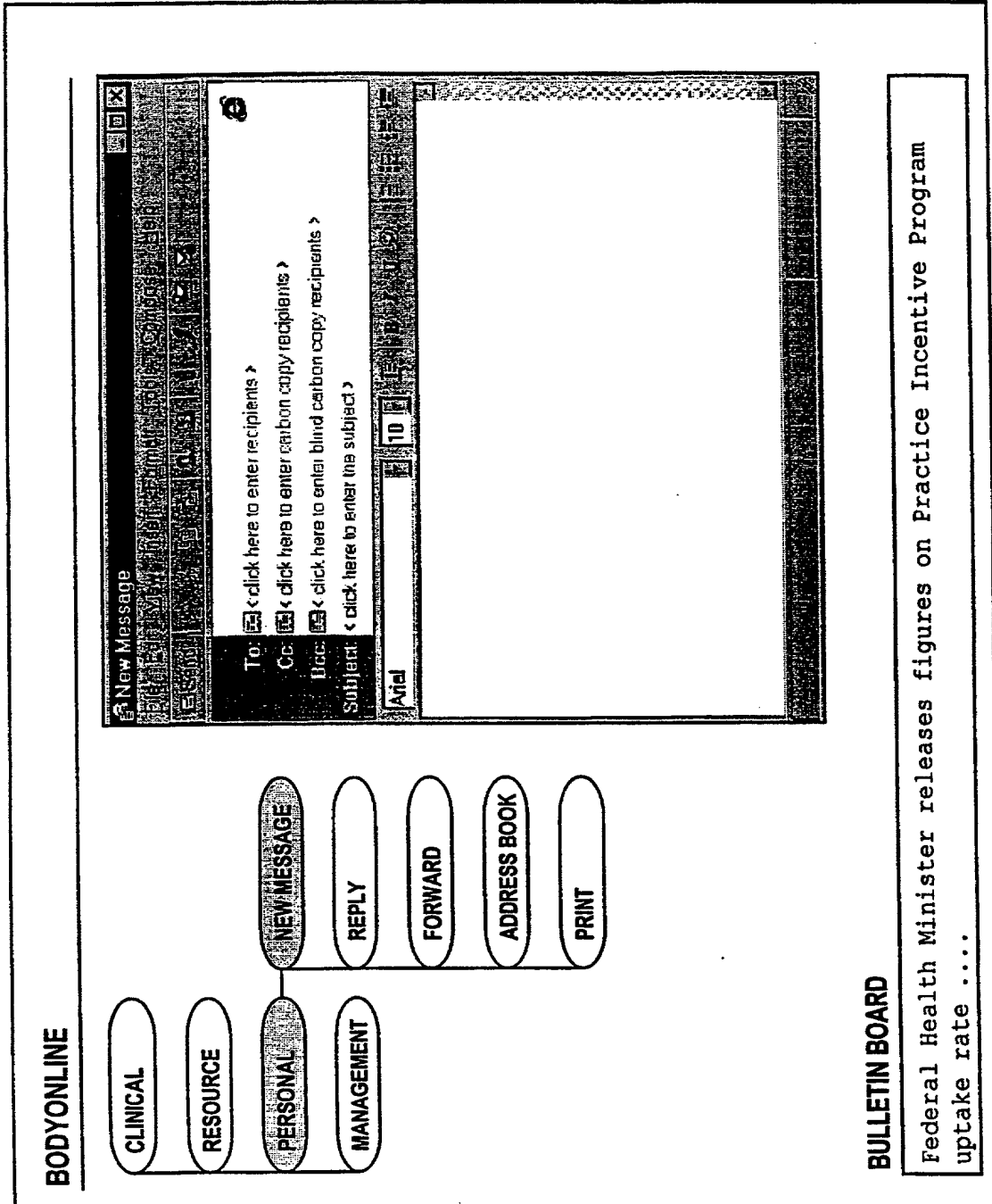


FIG. 11

PTO/SB/01 (6-95) (modified)
Approved for use through 10/31/96 OMB 0651-0032

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

<p>0010/PTO Rev. 6/95</p> <p>U.S. Department of Commerce Patent and Trademark Office</p> <p>COMBINED DECLARATION (37 CFR 1.63) AND POWER OF ATTORNEY FOR UTILITY OR DESIGN PATENT APPLICATION</p> <p><input checked="" type="checkbox"/> Declaration Submitted with Initial Filing OR <input type="checkbox"/> Declaration Submitted after Initial Filing</p>	Attorney Docket Number	6640 US
	First Named Inventor	RICHARD, Gregory W.
	COMPLETE IF KNOWN	
	Application Number	
	Filing Date	
	Group Art Unit	
	Examiner Name	

As a below named inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DISPLAYING MEDICAL IMAGES AND EFFECTS OF DISEASE AND/OR DRUGS

the specification of which

(Title of the Invention)

☐ is attached hereto

OR

☒ was filed on 21 July 2000 as United States Application Number or PCT International

Application Number PCT/AU00/00872 and was amended on (MM/DD/YYYY) [] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
PQ 1806	Australia	07/23/99	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental sheet attached hereto.

A1000/00103/DOCS/1237320.1

DECLARATION				Page 2	
<p>I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s), or § 343(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.</p>					
U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)		
	PCT/AU90/06872	21 JULY 2000			
<input type="checkbox"/> Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.					
<p>As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.</p>					
Name	Registration Number	Name	Registration Number		
<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">2</div> Albert C. Smith Estate Heir	20,355 44,149				
<input type="checkbox"/> Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.					
<p>Please direct all correspondence to:</p> <div style="text-align: center; margin-top: 10px;"> Albert C. Smith Fenwick & West LLP Two Palo Alto Square Palo Alto, CA 94306 U.S.A. </div>					
Telephone (650) 253-7296		Fax (650) 494-1417			
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.</p>					
<p>Name of Sole or First Inventor: <input type="checkbox"/> A petition has been filed for this unsigned inventor</p>					
Given Name	Gregory	Middle Initial	W.	Family Name	Richard
Inventor's Signature				Date	x 20.01.2002
Residence: City	Hunters Hills	State	NSW	Country	Australia
Mailing Address	49 Milling Street NO X				
Mailing Address					
City	Hunters Hills	State	NSW	Zip	2110
		Country	Australia		
<input type="checkbox"/> Additional inventors are being named on supplemental sheet(s) attached hereto.					

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